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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,639	08/05/2003	Jong Hwan Kim	46500-000122/US	5474
30593	7590	06/17/2005	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C.			ANDERSON, DENISE BROWN	
P.O. BOX 8910			ART UNIT	
RESTON, VA 20195			PAPER NUMBER	
			2877	

DATE MAILED: 06/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary

Application No.

10/633,639

Applicant(s)

JEONG ET AL

Examiner

Denise B. Anderson

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 2/9/05.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date 2/9/05.
- 4) ☐ Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. Figures 1, 2A, and 2B should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. A substitute specification in proper idiomatic English and in compliance with 37 CFR 1.52(a) and (b) is required. The substitute specification filed must be accompanied by a statement that it contains no new matter. It is noted by the examiner that essentially every page of the specification includes non-standard English. Some examples of non-standard English include the following:

- a. In the abstract, the applicant uses the phrase "that a refractive index is reflected".
- b. In the abstract, the applicant uses the phrase "for high precisely measuring".
- c. On page 4 of the specification (paragraph 0007), the applicant uses the phrase "However, if thick thin film, since necessary time to estimate".

- d. On page 6 of the specification (paragraph 0020), the applicant uses the phrase "Where, a d value where".
 - e. On page 10 of the specification (paragraph
 - f. On page 16 of the specification, the applicant uses the phrase "by reflecting the refractive index dispersion".
 - g. On page 18 of the specification (paragraph 0079), the applicant uses the phrase "so that through demands for demanding".
3. The disclosure is objected to because of the following informalities: On pages 2 and 16 of the specification (paragraphs 0002 and 0073), the applicant refers to a "reflective" index. The examiner interprets that the applicant means to say "refractive" index. Appropriate correction is required.
4. The disclosure is objected to because of the following informalities: on page 4 of the specification (paragraph 0009) the applicant refers to the substrate with reference numeral 20, but it is designated as reference numeral 30 in the corresponding drawing. Appropriate correction is required.

Claim Objections

5. Claims 1, 2, 4, 5, and 6 are objected to because of the following informalities: the applicant uses language such as "refractive index is reflected". This is non-standard English, and the examiner has interpreted this language to indicate that the refractive index is a function of the wavelength, which is also a function of the reflected intensity. Appropriate correction is required.

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6. Claim 3 is objected to because of the following informalities: there is no antecedent basis for an "optical disc layer". The examiner suggests that the applicant change the phrase "the optical disc layer" to "an optical disc layer". Appropriate correction is required.

7. Claim 5 is objected to because of the following informalities: the generic refractive index n has not been defined in relation to the layer refractive indices. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

8. Claim 6 is rejected under the second paragraph of 35 U.S.C. 112. The claim is generally narrative and indefinite, failing to conform with current U.S. practice. It appears to be a literal translation into English from a foreign document and is replete with grammatical and idiomatic errors. The examiner is unable to ascertain the scope of the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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9. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chalmers et al (US Patent No. 6,172,756) further in view of Horie (US Patent No. 5,440,141).

10. As to claim 1, the applicant claims a method for measuring thickness of an optical disc including detecting light intensity as a function of wavelength, converting the intensity spectrum to one that is a function of refractive index, and using the Fast Fourier Transform method to convert the spectrum from one that depends on refractive index to one that is a function of layer thickness. The applicant notes on page 3 of the specification that the optical disc can be treated as a thin film. In figure 8, Chalmers et al teaches film measurement based on obtaining intensity data as a function of wavelength, then as a function of refractive index, and then using the Fourier Transform for calculating the thickness. Chalmers et al discloses use of the Fast Fourier Transform method in column 7, lines 48-51. As to claims 1 and 3, the applicant claims that the optical disc has a cover layer and a spacer layer with different indices of refraction. Chalmers et al does not explicitly teach multiple layers, but does suggest that multiple layers may be used (Column 22, lines 20-24). Horie teaches a method for measuring a thickness of a multi-layered sample with different refractive indices (figures 15 and 16). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Chalmers et al with those of Horie for the purpose of measuring films with multiple layers.

11. As to claim 2, the applicant claims a specific functional relationship between the refractive index and wavelength. Chalmers et al teaches a specific functional

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relationship between the refractive index and the wavelength (column 6, line 30), but it is a different relationship from the one described by the applicant. However, both relationships serve the same purpose – they both provide the intermediate step between converting the intensity versus wavelength spectrum to an intensity-versus-refractive index spectrum (reference numeral 57 in figure 17). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the appropriate wavelength-refractive index relationship, based on the film characteristics, for the purpose of converting one spectrum into another and thereby obtaining the film thickness.

12. As to claim 4, the applicant claims, as part of the method, detecting the positions that correspond to the film thickness. Chalmers et al teaches performing analysis of data to obtain the layer thickness (column 21, line 60).

13. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chalmers et al and Horie, further in view of admitted prior art. In claim 5, the applicant claims a specific relationship between the refractive index and the wavelength. Chalmers et al and Horie do not teach this specific functional relationship between the refractive index and the wavelength. This specific relationship has been described by the applicant as prior art in the background of the invention, and is therefore, admitted prior art. It would have been obvious to one of ordinary skill in the art at the time of the invention to make use of the conventional relationship between the refractive index and the wavelength for the purpose of converting from an intensity-versus-wavelength spectrum to an intensity-versus-refractive index spectrum.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Nishizawa et al (US Patent No. 5,227,861). Nishizawa teaches an apparatus for and a method of evaluating multi-layer thin films in which the Fourier Transform is applied to the interferogram.

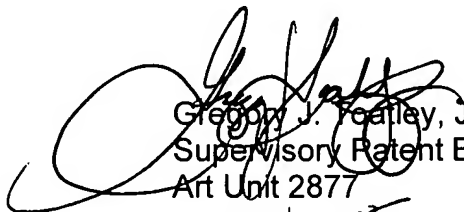
Fax/Telephone Information

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Denise B. Anderson whose telephone number is 571-272-8324. The examiner can normally be reached on Mon-Fri (9:30 AM - 6 PM).

16. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley Jr. can be reached on 571-272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

17. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Gregory J. Toatley, Jr.
Supervisory Patent Examiner
Art Unit 2877
13 June 05